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Pompeii Bibliography and Mapping Project

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From September of 2013 through the June of 2015, the Pompeii Bibliography and Mapping Project accomplished each of its primary goals, though not all to the same degree of completeness. These goals were: 1. to create the first online GIS map of Pompeii, 2. to compile a robust bibliography for the ancient city and its related subjects, and 3. to interconnect these data such that one might use the space of Pompeii to explore its bibliography and vice versa.

The first two goals, the creation of two important resources for the study of ancient Pompeii, were especially successful. The details of much of this work is described on our process blog, which is cited in the following discussion. To make the map required a number of steps including inventorying existing large stores of digital data produced for different purposes, determining a set of real world coordinates along with a coordinate system and projection for them,[1] and establishing a clear and comprehensive (though not cumbersome) set of metadata standards for our spatial data.[2] We then sketched out a path from basic navigation maps, to richer information maps, to fuller integration with the bibliographic content.[3] One area still in need of refinement is the internal consistency of the spatial data (i.e., how precisely each polygon lies beside or above the others), although its positioning in real geographic space was resolved.[4] In November 2014, the first map for navigation was published with all buildings and many other architectural features connected to a number of related data sets, building name(s), their excavation dates, links to images of the building (via Pompeii in Pictures), as well as some brief bibliographic information. At the time of writing, the map has been accessed 24,000 times, by an estimated 11,300 visitors, from more than 120 countries around the world.[5] The map and its data have been used as the basis for a number of research projects and events, including the Ancient Graffiti Project and

[1] "The PBMP: Getting Started" http://digitalhumanities.umass.edu/pbmp/?p=607
[2] "Mapping the Mapping Metadata" http://digitalhumanities.umass.edu/pbmp/?p=919
[3] "Mapping the Mapping Project's Design" http://digitalhumanities.umass.edu/pbmp/?p=1024
[4] "The Elegance (and Importance) of Ugly: the 'Errorscape'" http://digitalhumanities.umass.edu/pbmp/?p=1134
[5] Visitor esitmate was made by dividing total page views for the map (26818) post by average page depth (2.37)

OpenPompei's "hackaton" called the SCRIPTORIVUM.[6] Finally, using these spatial data and the ArcGIS Online platform, we created an additional map to allow anyone to see where the funds from the 105 million Euro "Grande Progetto Pompei" were being allocated.[7]

Building the bibliographic catalog has also been a success. In our application for funding, we expected that we could ingest only the first two volumes of the *Nova Bibliotheca Pompeiana*, totaling c. 14,500 citations. To date, our Zotero database has nearly 18,500 references in it, which is 23% greater than our expectations. Our efforts, however, were not without substantial hurdles to overcome, including remapping thousands of citations held in spreadsheets to meet both Dublin Core metadata standards and file formats that Zotero could import.[8] Additionally, our desired connection to full-text references and the processing of such objects using Natural Language Processing techniques required that the University of Massachusetts become a HathiTrust partner and negotiate an acceptable licensing agreement with Google.[9] Nonetheless, hundreds of full-text books and articles have been linked to our bibliography since 2014. Finally, although it is not possible to determine accurate use stats for the bibliography, a minimum of 592 visits have occurred via the PBMP's Zotero webpage.

The third goal of the PBMP was the creation of a bi-directional interface between the map and the bibliography, such that the former could be used to structure the search of the later. At the end of the grant period, this interconnection was only just being realized. Today, we have a workable prototype using the CartoDB platform, which solved the last remaining concerns we had for the complexity - and therefore

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[6] Ancient Graffiti Project http://ancientgraffiti.wlu.edu/; SCRIPTORIVM http://www.openpompei.it/scriptorivm/. The PBMP has also been cited in a book (Rau and Schönherr 2013, Mapping Spatial Relations, *Their Perceptions and Dynamics: The City Today and in the Past*
) and used to create maps for a published article (Cova 2015, "Stasis and Change in Roman Domestic Space: The Alae of Pompeii's Regio VI" *AJA* 119, 69–102).

[7] "A map for the Grande Progetto di Pompei and the Portale della Trasparenza" http://digitalhumanities.umass.edu/pbmp/?p=1448

[8] "PBMP Bibliography: Excel → RIS → Zotero → Omeka" http://digitalhumanities.umass.edu/pbmp/?p=1204

[9] "The Elephant in the Room" http://digitalhumanities.umass.edu/pbmp/?p=873; "Open access win: UMass Amherst and Google reach licensing agreement" http://digitalhumanities.umass.edu/pbmp/?p=1012

the sustainability - our earlier solutions. We will be sharing our new map and describing its functions on the process blog in the near future.

The PBMP has also witnessed failures, or at least was unable to achieve an expected level of development in three areas. The interconnection between components was certainly an example of the latter. We had hoped for a more robust interdigitation. Two other proposed workflows - the use of Natural Language Processing techniques on available full-text objects and the creation of exhibits in Omeka using bibliographic content - were eventually abandoned during the grant term. The sources of these failures, however, are instructive as they would undoubtedly disrupt many endeavors in the digital humanities. The first was the loss of key personnel. In the PBMP's grant application, Rebecca Reznik-Zellen (UMass' Digital Strategies Librarian) was tapped to captain our bibliographic processes, but by the beginning of the grant's term, she had accepted better employment. Similarly, our expert on Natural Language Processing, Prof. David Smith, took a new job at another university. The absence of their expertise was a significant blow to project's first weeks and required a rethinking of the work and how it could be accomplished.

The upshot of these obstacles, was that they forced a refocusing on core elements of the project and on building components that did not rely upon systems I could not construct and administer myself. What was lost in the PBMP's overall functionality (e.g., the lack of exhibits in Omeka and the use of substantial corpus of full-text object to extend our corrigenda connecting places in the map to references in the bibliography) was gained in the sustainablity of its overall design. The PBMP's foundational elements are housed within stable third-party platforms - Zotero and ArcGIS Online - which I can administer with very little additional technical expertise. We intend to return to these missed opportunities, along with other means of further implementing the PBMP's goals in the near and farther future.

Both the PBMP team and the University of Massachusetts Amherst are committed to the long-term success of this project. Indeed, during the project the UMass Libraries renewed their commitment, offering on-going *ad hoc* support and personnel to maintain the connection between our bibliographic data and platforms. During the grant period, our need for datasets in the HathiTrust pushed forward the institutional partnership between UMass and Google, requiring negotiations at the highest levels in the UMass system.[10] Equally important, individuals became personally invested in the PBMPs success, not least our GIS architect, Alexander Stepanov, whose initiative and vision continue to lead our spatial efforts. To that end, students in Stepanov's co-tuaght advanced Web GIS Development course are using the PBMP data and CartoDB to explore a range of mechanisms for robust and sustainable interactivity between the bibliography and the map. Similarly, students are continuing to build and to refine our bibliographic content, they are using and building PBMP maps in several classes, and are helping to design an Omeka exhibit for the Notizie degli Scavi d'Antichita. We hope to build future partnerships with the Center for Intelligent Information Retrieval (CIIR) at UMass to return to the question of text mining and language processing of the bibliographic catalog.

Beyond these more localized solutions, we have begun a new phase of development which will expand the reach and the content of the PBMP's spatial and historical data. In partnership with colleagues at New York University (Sebastian Heath) and the University of Cincinnati (Steven Ellis), the PBMP is applying for new funding from the ACLS and NEH for a project to apply linked open data standards to the digital representation of Pompeii's architecture, down to the resolution of the individual wall, and to provide those data in open repositories. Moreover, our proposal includes the use of crowdsourcing technologies to describe the approximately 8000 wall paintings attached to those individual walls, creating the first searchable and mapable database of motifs, figures, themes, and styles of Pompeii's urban decor. We believe this project will open the space of Pompeii even more widely to scholars,

[10] See "Open access win: UMass Amherst and Google reach licensing agreement" http://digitalhumanities.umass.edu/pbmp/?p=1012

teachers, and the lay public while simultaneously offering a powerful new dataset and research tool to explore social and economic questions in the production and consumption of Roman wall painting. Once again, the institutional commitment from UMass has been exceptionally strong, including support not only for hosting and for programming to build our extension of the PBMP, but also an interest to broaden its impact by incorporating the process and the final product into undergraduate education. UMass has understood the value of the education students will receive in helping to study hundreds of ancient paintings and the variety of teaching modules that could be imagined from having this resources available.

The PBMP is imagined to have a very long future, though one that will certainly change its form and underlying technologies. Such evolution has been a hallmark of the project and one that is documented in our publications, presentation, and on our process blog. The details of these academic products serve as documentation and history of our work and as an end to this report.

Publications

Poehler, E. E. Forthcoming. “Digital Pompeii: Dissolving the Fieldwork-Library Research Divide.” In: Averett, A., J. Gordon, and D. Counts (eds.), *Mobilizing the Past*, (Fargo: University of North Dakota Digital Press).

Poehler, E. E. 2014. “The Pompeii Bibliography and Mapping Resource.” In: Elliot, T., S. Heath, and J. Muccigrosso (eds.), *Current Practice in Linked Open Data for the Ancient World*, ISAW Papers 7, no. 21. http://dlib.nyu.edu/awdl/isaw/isaw-papers/7/poehler/

Presentations (by E. Poehler).

2015a. “Hard lessons in digital archaeological practice.” *Kent Institute of Advanced Studies in the Humanities*, visiting expert lectures, November 11.

2015b. “Digital Pompeii: Dissolving the Fieldwork-Library Research Divide,”*Mobilizing the Past for a Digital Future: The Potential of Digital Archaeolo*gy, NEH Workshop. Boston, MA, February 28.

2014a. “The ‘Wow!’ and the Worry of Future Archaeology,” *New England Antiquities Research Association,* 50th annual conference. Nashua, NH, November 1.

2014b. “*Roman Archaeology. Online and in the Classroom*,” *Multimedia Tools in the Traditional Classroom,* Five Colleges Blended Learning workshop. Online, October 28.

2014c. “From evidence to data: Digital Humanities and the transformation of academic practice,” *Digital Scholarship & Pedagogy: Opportunities, Obstacles, & Consequences,* conference. Bates College, Lewiston, ME, May 16.

2014d. “Navigating Pompeii's bibliography through a map: The Pompeii Bibliography and Mapping Project,” *Computer Applications and Quantitative Methods in Archaeology*. Paris, France, April 24.

2014e. “Digital Archaeology at an urban scale,” *Rebuilding the City: New approaches to urbanism in Roman Italy,* graduate conference. University of Texas at Austin, Austin, TX, April 12.

2013a. “The Pompeii Bibliography and Mapping Project,” *Herrenhausen Conference: Digital Humanities Revisited*. Hannover, Germany, December 5.

2013b. “The Pompeii Bibliography and Mapping Project. A new resource for Pompeii, a new model for complex classical sites,” *Digital Classicist Berlin seminar series (TOPOI / DAI).* Berlin, Germany, November 5.

Process Blog:
2015: Two Posts.
2014: Ten Posts.
2013: Three Posts.